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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,809	11/21/2002	Alain Blanc	FR920010071	7980
24241 7590 03/09/2007 IBM MICROELECTRONICS INTELLECTUAL PROPERTY LAW 1000 RIVER STREET 972 E ESSEX JUNCTION, VT 05452			EXAMINER DING, LEIBO	
			ART UNIT	PAPER NUMBER
			2616	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/09/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/065,809

Applicant(s)

BLANC ET AL.

Examiner

Leibo Ding

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3,5,6 and 10-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3,5,6 and 10-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

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## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendment filed on 11/07/2006 has been entered. The amendment to specification and claims are accepted to overcome the specification objection, claim objection and the 35 USC 112 second paragraph rejection.

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. EP01480144.3, filed on 12/21/2001.

### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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2. Claim 10 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of copending Application No. 10/065808. Although the conflicting claims are not identical, they are not patentably distinct from each other. The reason is as below:

In claim 9 of the copending application 10/065808, applicant claims all the limitation of claim 10 of current application, also includes other two steps: b) obtaining authorization to send data packet corresponding to the priority rank N; c) determining whether said data packet corresponding to the priority rank N is in said queue device corresponding to the priority rank N. Also, the "mechanism" in claim 10 of current application is considered to be similar to the "method" in claim 9 of application 10/065808.

Comparing with claim 9 of application 10/065808, claim 10 of current application merely broadens the scope of the claim 9 of application 10/065808 by eliminating the authorization process, and canceling the availability check of corresponding packets. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to cancel these 2 steps cited above to obtain the invention as specified in claim 10 of current application for simplifying the system design and also remaining the same function of the system as before.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 10, 11, 14 and 16 – 18 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6980513 to Novick et al (hereinafter "Novick").

With respect to claim 10, Novick discloses a queue scheduling mechanism in a data packet transmission system, referring to Figure 1, including a transmission device (mixed traffic multiplexer 14 in Figure 1) for transmitting data packets, a set of queue devices (queues 16, 18, 20, 22, 26, 28, 30 and 32 in Figure 1) respectively associated with a set of priorities each defined by a priority rank for storing each of data packet transmitted by said transmission device into the queue device corresponding to one of said priority ranks, and a queue scheduler (scheduler 34 in Figure 1) for reading, at each packet cycle, a data packet in one of said queue determined by a normal priority preemption algorithm (best effort for low priority multiplexer 12). Said queue mechanism comprising: a credit device (MCR list 36 in Figure 1, col.3, lines 36 – 37) that provides (MCRR 16a, 18a, 20a and 22a in Figure 1) at least at each packet cycle a value N defining the priority rank to be considered by said queue scheduler (col.4, lines

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5 – 8, steps 102 and 104 of Figure 2), the considered priority rank is selected based on a pre-determined value related to all of said priority ranks which are associated with said queue scheduling mechanism (col.4, lines 8 – 13), whereby a data packet is read by said queue scheduler from the queue device corresponding to the priority rank N instead of said queue device determined by the normal priority preemption algorithm (col.4, lines 19 – 24, 30 – 34; steps 110 – 130 in Figure 2). Novick does not specifically disclose the reception device in the system, but it is inherent here because transmitter cannot transmit data if there is no receiver.

With respect to claim 11, Novick discloses that credit device (MCR list 36 in Figure 1) includes a credit table storing at each address (MCRR 16a, 18a, 20a and 22a in Figure 1) a value N equal to one of said priority ranks (col.4, lines 5 – 8), and address to be read by said queue scheduler for determining said priority rank N being incremented at each packet cycle after a data packet has been read from the queue device corresponding to said priority rank N (col.4, lines 34 – 38, steps 132 → 114 in Figure 2 (move to next connection or priority)).

With respect to claim 14, Novick discloses that a data packet is read from the queue device determined by said normal priority preemption algorithm when there is no data packet available in the queue device corresponding to said priority rank N (col.4, lines 30 – 34, wherein CCR serves the high priority scheduler (priority rank N), and low priority scheduler only serves as best effort when CCR runs out).

With respect to claim 16, Novick discloses that the queue scheduling mechanism is used in a switch engine of a switching node within a network, the transmission device is an input adapter and reception device is an output adapter (col.3, lines 7 – 9).

With respect to claim 17, Novick discloses that the pre-determined value comprises a pre-determined percentage of occurrences of said considered priority rank relative to all of said priority ranks (col.4, lines 8 – 15).

With respect to claim 18, Novick discloses an output signal line that provides said data packet that is read by said queue scheduler to said reception device (the output line with an arrow on the right side of the mixed traffic multiplexer 14, in Figure 1).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6980513 (Novick) in view of USPN 6721273 to Lyon et al (hereinafter "Lyon").

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With respect to claims 12 and 13, Novick failed to teach that a data packet is read by queue scheduler from said queue device corresponding to said priority rank N only if an active GRANT signal from said reception device is received by said queue scheduler; also Novick failed to teach that the GRANT signal depends upon a filling level of receiving queue device in said reception device.

Lyon teaches method and apparatus for traffic flow control in a data switch, referring to Figures 1 and 6, a traffic flow controller (TFC 100 in Figure 1) is coupled between the output and input ports (col.5, lines 22 – 27); the scheduler 50 (in Figure 6 of Lyon) only sends data when indicated no congestion (GRANT) (col.7, lines 48 – 53). Also, Lyon teaches the GRANT signal depends on a filling level of the receiving queue device in the reception device (col.6, lines 2 – 9).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to add the method cited above as taught by Lyon to the method of Novick to obtain the invention as specified in claims 12 and 13.

The motivation for doing so would have been to guarantee the QoS contract by using flow control in a switch.



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7. Claims 15, 19, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6980513 (Novick) in view of USPN 6438134 to Chow et al (hereinafter "Chow").

With respect to claim 15, Novick discloses all the limitation of claim 11, from which claim 15 depends. Novick does not disclose that the locations in the credit table contain no value meaning the priority rank to be considered the highest priority rank.

Chow teaches a method for servicing queues by a hierarchical scheduler including weighted fair queue scheduler 116 (Figure 8 of Chow), the credits (or weights) are assigned as Table 3 (col.12 of Chow)  $p_1$ ,  $p_2$ ,  $p_3$ ,  $p_4$  and  $\infty$ , wherein  $\infty$  represents the highest priority (col.12, lines 27 – 31 of Chow).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to add the method cited above by Chow to the mechanism of Novick to obtain the invention as specified in claim 15.

The motivation for doing so would have been to guarantee the data packet with highest priority to be transmitted without delay or loss.

With respect to claims 19 and 5, Novick does not disclose that the queue scheduling mechanism comprises an exhaustive priority register that registers the value of at least

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one exhaustive priority rank to be read by said queue scheduler from the queue device corresponding to said exhaustive priority rank rather than from the queue device corresponding to said priority rank N.

Chow teaches a method for hierarchically scheduling the data packet in a switch, referring to Figure 2 of Chow, comprises an secondary idle BW scheduler 25, which is preferably implemented as weighted fair queue scheduler (works as the priority rank scheduler) (col.6, lines 1 – 9 of Chow); a secondary shaper scheduler 20 and an exhaustive scheduler 30, the secondary shaper scheduler 20 is assigned a higher priority level than the secondary idle BW scheduler 25, thereby ensuring the former will always served ahead of the latter (Figure 2, col.5, lines 19 – 37 of Chow).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to add method of exhaustive priority as taught by Chow to the method of Novick.

The motivation for doing so would have been to allocate enough resource for the high priority data packet to guarantee the QoS.

With respect to claim 6, Novick discloses the priority rank N has higher priority than normal priority (col.4, lines 19 – 24, 30 – 34; steps 110 – 130 in Figure 2 of Novick); Novick does not disclose exhaustive priority has higher priority than priority rank N.

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Chow teaches that the secondary shaper scheduler 20 (exhaustive priority) has higher priority than the secondary idle BW scheduler 25 (priority rank N) (Figure 2, col.5, lines 19 – 37 of Chow). Which means normal priority preemption only can be scheduled when there is no data packet available for exhaustive priority and priority rank N.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the method as above as taught by Chow with the method of Novick to obtain the invention as specified in claim 6.

The motivation for doing so would have been to provide more classified priority levels and guarantee the QoS contract.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6980513 (Novick) in view of USPN 6438134 (Chow) and USPN 6721273 (Lyon).

With respect to claim 3, Novick as modified by Chow teaches all the limitation of claim 19, from which claim 3 depends. Novick as modified by Chow does not teach that a data packet is read out by queue scheduler from said queue device corresponding to exhaustive priority only if an active GRANT signal from said reception device is received by queue scheduler.

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Lyon teaches that the scheduler 50 (in Figure 6 of Lyon) only sends data when indicated no congestion (GRANT) (col.7, lines 48 – 53).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the method cited above as taught by Lyon with the method of Novick as modified by Chow to obtain the invention as specified in claim 3. The motivation for doing so would have been to implement flow control in a switch, avoid data loss and guarantee the QoS.

### ***Response to Arguments***

9. Applicant's arguments with respect to claim 10 have been considered but are moot in view of the new ground(s) of rejection. Also, in view of the claim 9 of application 10/065808, claim 10 still has Non-Statutory Obviousness-type double patenting problem. See the claims rejections above for details.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

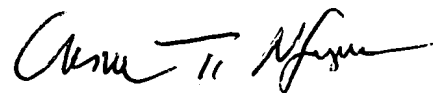
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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leibo Ding whose telephone number is (571) 270-1137. The examiner can normally be reached on Monday-Friday, 7:30 a.m.--5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LD/February 28, 2007

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